WHAT IS CLAIMED IS:



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1. A detector for simultaneously detecting and identifying subtypes of human papilloma viruses (HPV) contained in a sample, comprising:

a carrier having a first part and a second part for carrying said sample thereon;

a first oligonucleotide carried on said first part of said carrier; and a second oligonucleotide carried on said second part of said carrier,

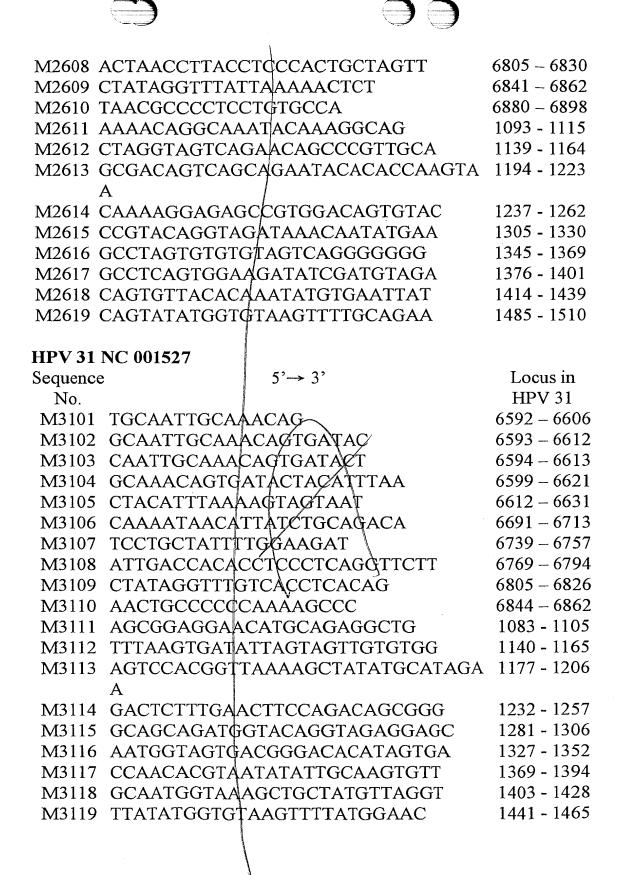
wherein said first and second oligonucleotides respectively hybridized with deoxyribonucleic acids contained in a first subtype of human papilloma virus and a second subtype of human papilloma virus for simultaneously detecting and identifying subtypes of human papilloma viruses.

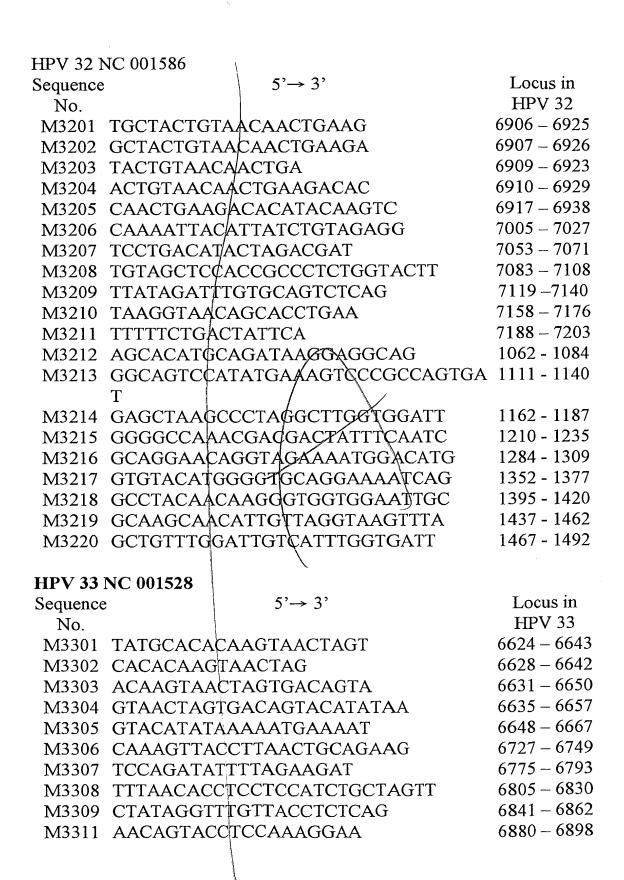
- 2. The detector according to claim 1, wherein said carrier is made of nylon.
- 3. The detector according to claim 1, wherein said carrier is a glass plate.
 - 4. The detector according to claim 1, wherein said first and second subtypes of human papilloma viruses are respectively selected from one of following viruses:

| HPV 11 NC 001525 | | |
|---------------------|---|-------------|
| Sequence | 5'→ 3'\\ | Locus in |
| No. | | HPV 11 |
| M1101 ATCTGTGTCTAAA | TC \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | 6799 –6813 |
| M1102 TCTGTGTCTAAAT | CTGCTAC \ | 6800 - 6819 |
| M1103 ATCTGTGTCTAAA | ATCTGCTACATACA | 6799 - 6824 |
| M1104 TGCATCTGTGTCT | TAAATCIG | 6796 - 6815 |
| M1105 AAATCTGCTACA | ΓΆCACΤΑΑ | 6809 - 6828 |
| M1106 CTAAATCTGCTAG | CATACACTA | 6807 - 6827 |
| M1107 CTACATACACTA | ATTCAGAT | 6816 - 6835 |
| M1108 TAGCATTACATTA | ATCTGCAGAAG | 6895 - 6917 |
| M1109 TCCTTCTGTTTTG | GAGGAC | 6943 - 6961 |
| M1110 TTTATCGCCTCCA | CAAATGGTACAC | 6973 – 6998 |



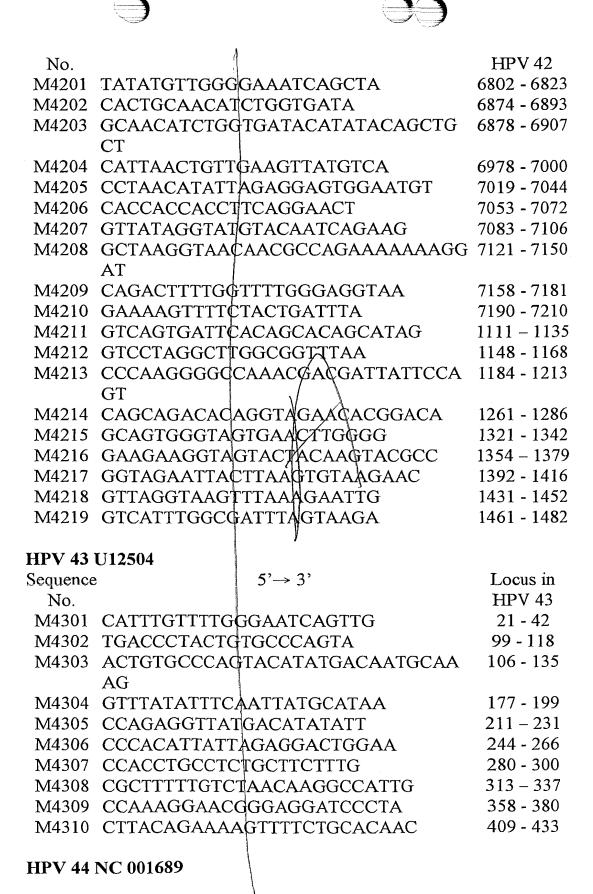
| | 1 | |
|---------------------------------------|-----------------------|-------------|
| M1621 CTATATGO | CCAAACACCACTTACAAAT | 1417 - 1442 |
| M1622 GTTATACO | GGGTGAGTTTTTCAGAAT | 1502 - 1527 |
| | | |
| HPV 18 NC 001357 | | |
| Sequence | 5'→ 3' | Locus in |
| No. | | HPV 18 |
| | CAGTCTCC | 6650 – 6664 |
| | CTGTACCTGGGCA | 6657 – 6676 |
| | TGTACCTGGGCAA | 6658 - 6677 |
| | TACCTGGGCAATATGA | 6660 - 6682 |
| | TGGGCAATATGAT | 6664 – 6683 |
| M1806 ATGATGC | TACCAAATTTAAG | 6679 – 6698 |
| M1807 TACTATT | A¢TTTAACTGCAGATG | 6752 - 6774 |
| M1808 TAGCAGT | TATTTTAGAGGAT | 6800 - 6818 |
| | CCCCCCAACTACTAGTT | 6830 - 6855 |
| · · · · · · · · · · · · · · · · · · · | TTTGTACAATCTGTT | 6866 – 6887 |
| M1811 GGATGCT | GCACCGGCTGAA\/ | 6905 - 6923 |
| M1812 CTATGAT | AAGTTAAAG /\ | 6935 - 6950 |
| | CAATGATGCAGAAGTGT | 1135 - 1157 |
| | AAACAGTCCATTAGGGGAGC | 1192 - 1217 |
| M1815 GCTGGAC | GGTGGATACAGAGTTAAGTC | 1219 - 1244 |
| M1816 AGTGGGC | CAGAAAAAGGCAAAAAGGCGG | 1271 - 1300 |
| CTG | | |
| M1817 CACAGAT | TTCAGGTAACTACAAATGGC | 1347 - 1372 |
| M1818 CAATGTA | TGTAGTGGCGGCAGTACGG | 1384 - 1409 |
| M1819 GACAACO | GGGGCACAGAGGGCAACAA | 1418 - 1443 |
| M1820 GTAGACO | GTACAAGTGACAATAGCAA | 1451 - 1476 |
| M1821 CCACAAT | GTACCATAGCACAATTAAA | 1493 - 1518 |
| M1822 CACATAT | GGGCTATCATTTACAGATT | 1573 - 1598 |
| | | |
| HPV 26 NC 001583 | | |
| Sequen | 5'→ 3' | Locus in |
| ce No. | | HPV 26 |
| M2601 TAGTACAT | TATCTGCAGCAT | 6619 - 6638 |
| M2602 ATTATCTG | CAGCATC | 6625 - 6639 |
| M2603 TGCAGCAT | CTGCATCCACTC | 6631 - 6650 |
| M2604 GCATCTGC | ATCCACTCCATTTAAA | 6635 - 6658 |
| M2605 CTCCATTTA | 4AACCATCTGAT | 6648 – 6667 |
| M2606 TAAAATAA | .CACTTACAACAGATG | 6727 – 6749 |
| M2607 TGCCTCCA | TATTGGAGGAT | 6775 – 6793 |
| | 1 | |

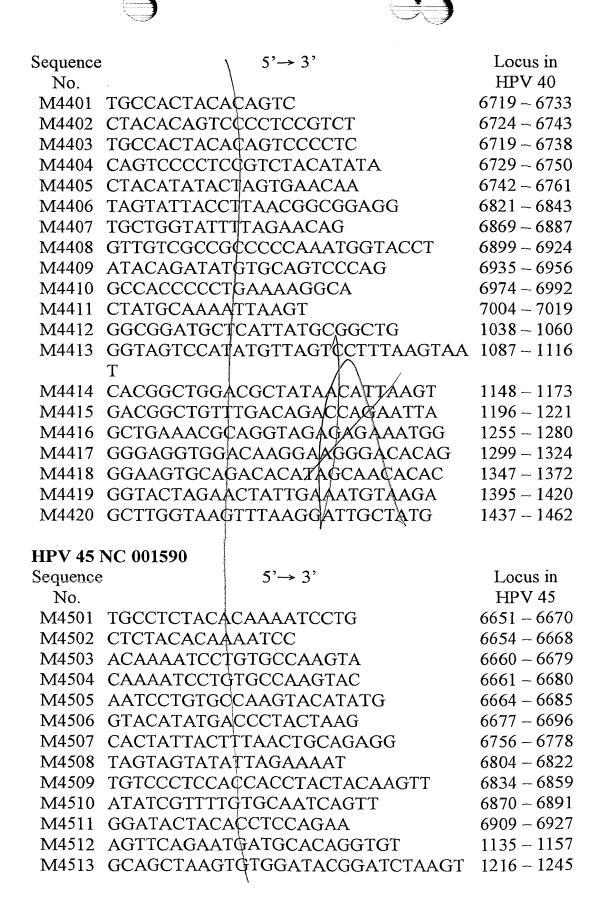




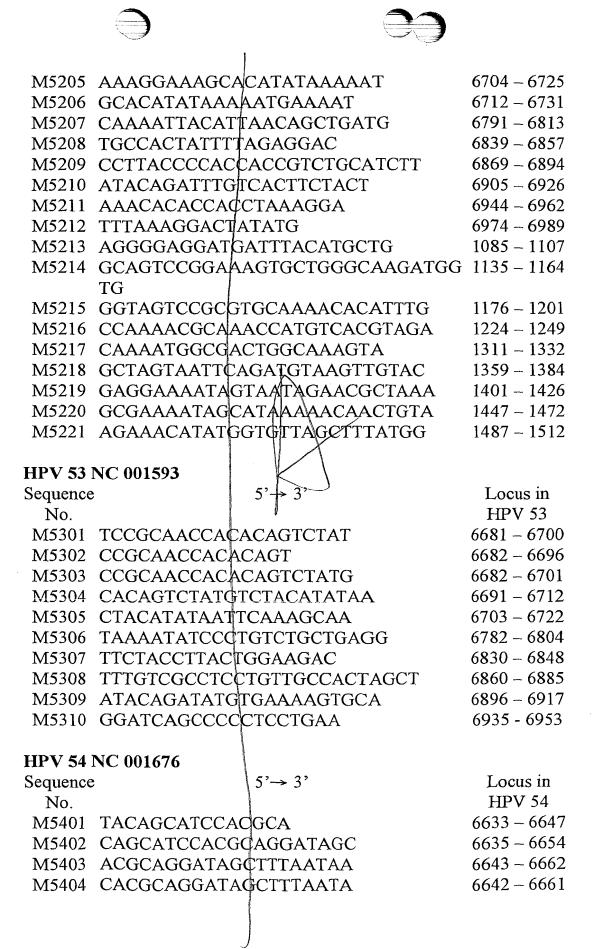
| M3312 | CTTAGGTAAAT | TACA | 6910 – 6925 |
|---------------|-------------------|--------------------------------------|-------------|
| | | GATTTAAATGCTG | 1100 - 1122 |
| M3313 | | AAGTGCTGCGGAGGA | 1149 - 1174 |
| M3314 | | | 1182 - 1207 |
| M3315 | | AAACCCGTGTAGAAC CAGAAAACGAAAAATAG | 1227 - 1256 |
| M3316 | AT | CAGAAAACGAAAAAAA | 1227 - 1230 |
| M3317 | AAATAGATGAG | CTAGAAGACAGCGGA | 1249 - 1274 |
| M3318 | GGTACAACAG(| GTAGAAAGTCAAAATG | 1307 - 1332 |
| M3319 | GACTTAGAAT¢ | TAGTGGGGTGGGGA | 1350 - 1357 |
| M3320 | CTGTGAGACA | ATGTAGATAGCTGTG | 1391 - 1416 |
| M3321 | CGTTGCAGGA | ATTAGTAATGTTCTA | 1426 - 1451 |
| M3322 | GAGGCCTATGC | GAATAAGTTTTAT | 1494 - 1516 |
| HPV 35 | NC 001529 | | |
| Sequence | 1 | 5'→ 3' | Locus in |
| No. | | \wedge | HPV 35 |
| M3501 | TCTGCTGTGTC | TTCTAGTGA | 6612 - 6631 |
| M3502 | TGCTGTGTCTT | · \ / | 6614 - 6628 |
| M3503 | GTGTCTTCTAG | | 6618 - 6637 |
| M3504 | 1 | AGTAÇATATAAA | 6622 - 6644 |
| M3505 | GTACATATAA | AATGACAAT\ | 6634 - 6653 |
| M3506 | TAAAATAACAC | CTAACAGCAGATG | 6713 - 6735 |
| M3507 | CCCGTCCATTT | | 6761 - 6779 |
| M3508 | CCTTACACCAC | CGCCTTCTGGTACCT | 6791 - 6816 |
| M3509 | ATATCGCTAT | TAACATCACAG | 6827 - 6848 |
| M3510 | ACCCAGTGCAC | CCAAAACCT | 6866 - 6884 |
| M3511 | GGAGCAAACA | CACAAAGAGGCTG | 1089 - 1111 |
| M3512 | GCAGCGTGAG | CTTATGTGTTAATAATAAC | 1151 - 1180 |
| | A | | |
| M3513 | GTCCACGTTTA | AAAGCTATTTGCA | 1184 - 1207 |
| M3514 | CGATTATTTGA | ACTACCAGACAGCGG | 1237 - 1262 |
| M3515 | GAGATACAACA | GGTAGAGGGGCATGA | 1291 - 1316 |
| M3516 | GGGCAGTGGG | \$ATAGTATAACCTCTA | 1338 - 1363 |
| M3517 | GACATGATGAC | ACTCCAACGCGAGAC | 1376 - 1401 |
| M3518 | CTAAAATGTAG | TAATGCAAACGCAGC | 1414 - 1439 |
| M3519 | GCTATGTTGGC | TAAATTTAAAGAACT | 1438 - 1463 |
| | | | |
| HPV 37 | NC 001687 | | |
| Sequence | • | 5°→ 3° | Locus in |
| No. | | | HPV 37 |
| | | | |

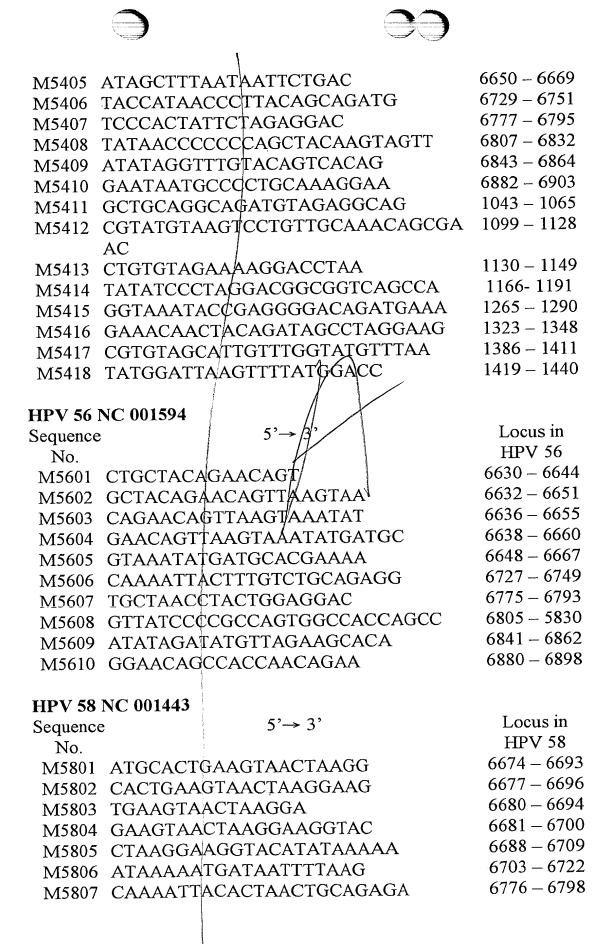
| M3701 | TGTCTACTGACAA | TG | 6782 – 6796 |
|----------------|---------------|------------------|----------------------------|
| M3701 | TGTCTACTGACAA | | 6782 - 6801 |
| M3702 | TGACAATGGCGA | | 6789 – 6808 |
| M3704 | GACAATGGCGAA | | 6790 – 6809 |
| M3705 | AATGGCGAAGTTA | | 6793 – 6812 |
| M3706 | CAGAATATAATTC | | 6806 - 6825 |
| M3707 | TAAAGTTCCTTTA | | 6885 – 6907 |
| M3708 | TTCTGGTATATTG | GAAGAG | 6933 – 6951 |
| M3709 | ATTTGTACCTACT | CCAGATAATTCAG | 6963 - 6988 |
| M3710 | TTATAGGTACATT | AATTCAAAG | 6999 – 7020 |
| M3711 | TGCAGTTGTTGAA | AAAGAA | 7038 – 7056 |
| M3712 | CTTTGCAAAATAT | ACA | 7068 – 7083 |
| | | | |
| | NC 001535 | | |
| Sequence | ; | 5'→ 3' | Locus in |
| No. | | arten Ca | HPV 39 |
| M3901 | | 4 | 6677 – 6691 |
| M3902 | TAGAGTCTTCCAT | A \ | 6682 – 6701 |
| M3903 | ATAGAGTCTTCCA | II \ | 6681 – 6700 |
| M3904 | GTCTTCCATACCT | | 6686 – 6708 |
| M3905 | CTACATATGATCC | 11/ | 6700 – 6719 |
| M3906 | TACTGTCACATTA | 11 | 6779 – 6801 |
| M3907 | TTCCTCTATATTG | i e | 6827 – 6844 6857 – 6882 |
| M3908 M3909 | TTACAGATACCTA | CACTCTCCA | 6893 – 6914 |
| M3910 | GGATGCTCCAGCA | | 6932 – 6950 |
| M3910 | ATATGACGGTCTA | | 6962 – 6977 |
| | GGCCCAAAGGGA | | 1149 – 1171 |
| M3913 | 1 | GCGACACTAGACCGTA | |
| 1413713 | TG | OCOACACIAONCCOIN | 1170 1223 |
| M3914 | GTAGGCAGGAAT. | ACCAGGGGAACAC | 1234 - 1258 |
| M3915 | GCAGTACGCAGG | CAACACAAACGGTG | 1283 - 1308 |
| M3916 | GGAGGAGGTAAC | TGTAGCAACTAATA | 1362 – 1387 |
| M3917 | CATGGCGGCAGT | GTACGGGAGGAGTG | 1411 – 1436 |
| M3918 | GGATAGTGCTATA | AGATAGTGAAAACC | 1446 – 1471 |
| M3919 | CTCCAACTGCACA | AAATTAAATTATTG | 1484 - 1509 |
| M3920 | CCAATAACAAA | AGGCTGCAATGCTA | 1517 - 1542 |
| | | | |
| , | NC 001534 | | |
| Sequence | \: | 5'→ 3' | Locus in |



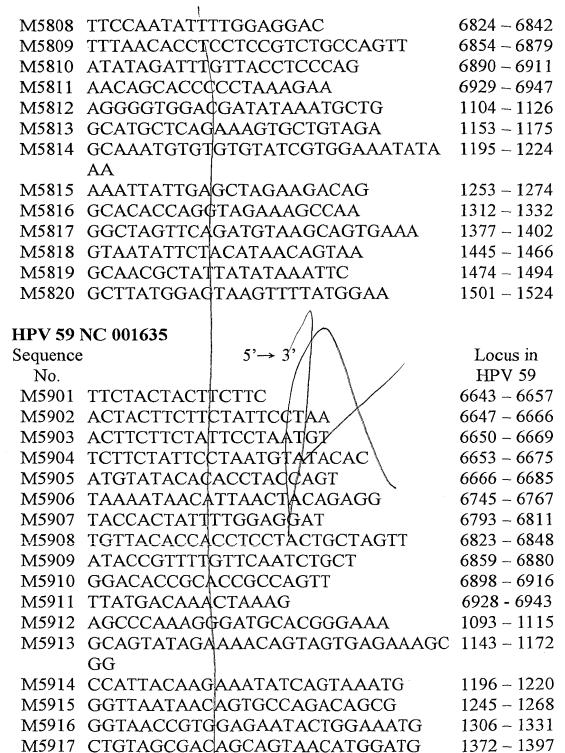


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|---------------|--------------|--|-------------|
| | \ | | |
| | CC | | |
| M4514 | 1 | ATTAAATAGTGGGCA | 1253 – 1278 |
| | 1 | CAATATCAGATAGTG | 1294 – 1319 |
| M4516 | 1 | AAGTAGTGGTGGGA | 1397 – 1422 |
| M4517 | | AAATGTAGATCCGCA | 1430 - 1455 |
| M4518 | | AAGCAAGTAACAAAA | 1477 - 1502 |
| M4519 | GCAATGCTGGC | AGTATTTAAAGACA | 1508 - 1532 |
| M4520 | ATATGGGCTGT | CATTTACGGATTTGG | 1534 – 1559 |
| | | - | |
| HPV 51 | NC 001533 | | |
| Sequence | } | 5'→ 3' | Locus in |
| No. | | | HPV 51 |
| M5101 | CACTGCCACTG | CTGCGGTTT | 6555 - 6574 |
| M5102 | TGCCACTGCTG | CGGT | 6558 – 6572 |
| M5103 | CACTGCTGCGG | TTTCCCCAA | 6561 - 6580 |
| M5104 | CCACTGCTGCG | GTTTCCCCA | 6560 - 6579 |
| M5105 | CTGCGGTTTCC | CCAACAT TAC | 6566 – 6587 |
| M5106 | CAACATTTACT | CCAAGTAA¢ \ | 6578 – 6597 |
| M5107 | TAAAATTACTT | CAACTACAGAGG / | 6657 – 6679 |
| M5108 | TCCTACCATTCT | TGAACAG / | 6705 - 6723 |
| M5109 | ATTAACATTAC | CTCCGTCTGETAGTT | 6735 - 6760 |
| M5110 | ATATAGGTTTG | TTAGAAATGCA \ | 6771 - 6792 |
| M5111 | GGACACCCCTC | CACAGGCT | 6810 - 6828 |
| M5112 | TTTGGCCAAAT | ATAAA \ | 6840 - 6855 |
| M5113 | ATTACAGGCAA | ACAAAGAGGCTG | 1092 – 1114 |
| M5114 | GCGAAGCAGCC | CATTAGGÁGACATTACA | 1149 – 1178 |
| | AA | | |
| M5115 | CCATAGTCAGG | CAAACGAGTCACAAG | 1197 – 1222 |
| M5116 | AGATTACTGGA | CAGTTATCCGGACA | 1231 – 1255 |
| M5117 | CAGGTAGATGG | GCAACATGGCGGTTC | 1300 - 1325 |
| M5118 | AGCTGTGCAAA | TGTAGAACTAAACAG | 1384 – 1409 |
| | | AATGAGTTGGTACG | 1477 – 1502 |
| | | | |
| HPV 52 | NC 001592 | | |
| Sequence | ; | 5'→ 3' | Locus in |
| No. | | | HPV 52 |
| M5201 | TGAGGTTAAAA | ÅGGA | 6695 - 6709 |
| | TGAGGTTAAAA | | 6695 - 6714 |
| | GAGGTTAAAAA | | 6696 - 6715 |
| | TTAAAAAGGAA | | 6700 - 6719 |
| • | | | |









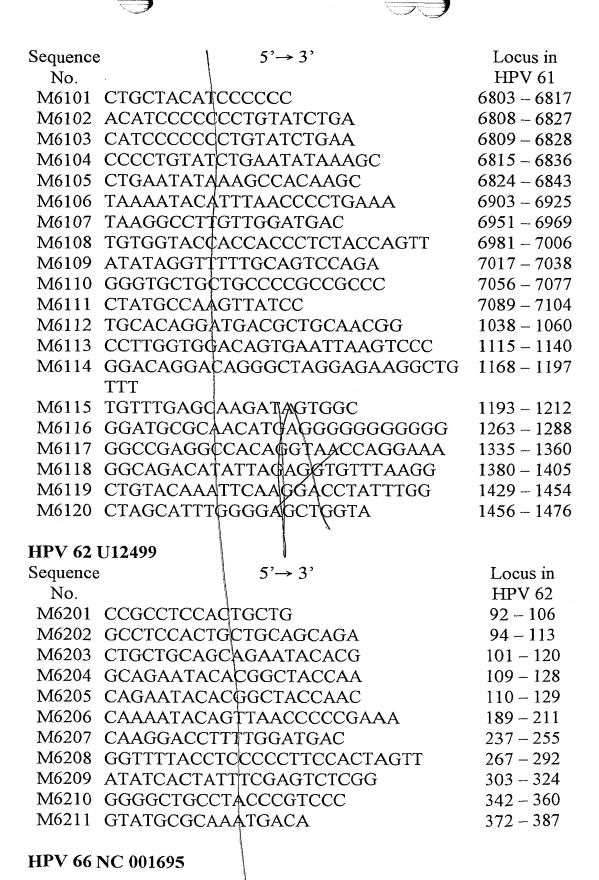
HPV 61 NC 001694

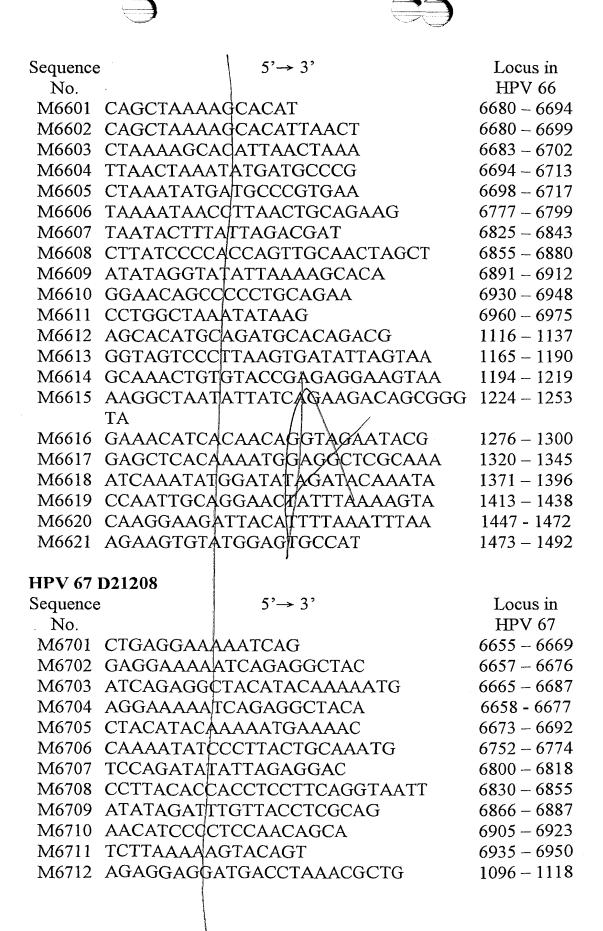
1421 - 1444

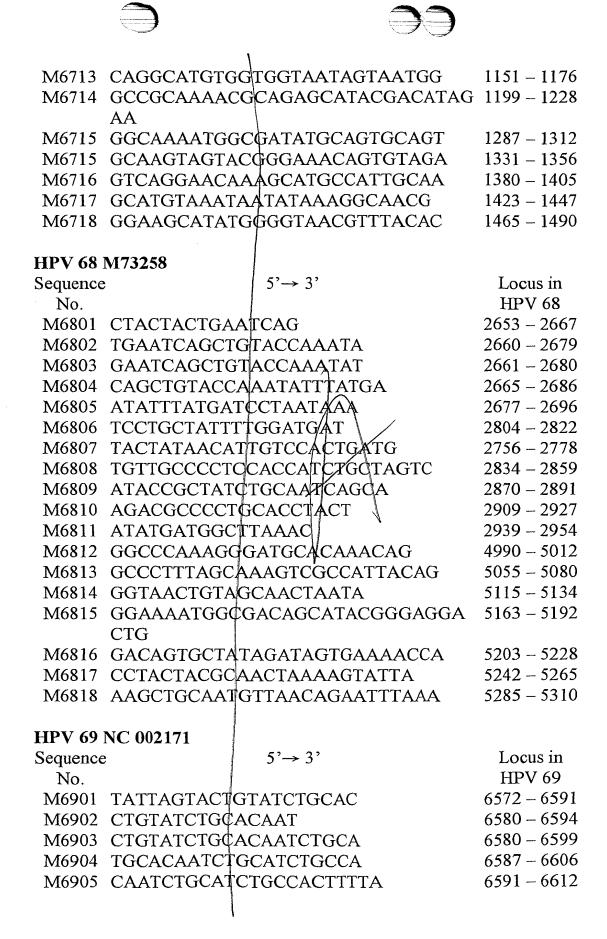
1499 - 1520

M5918 CCCACTAATCAATTGTTACAGTTA

M5919 GGGTTATCATTTCAAGATTTGG









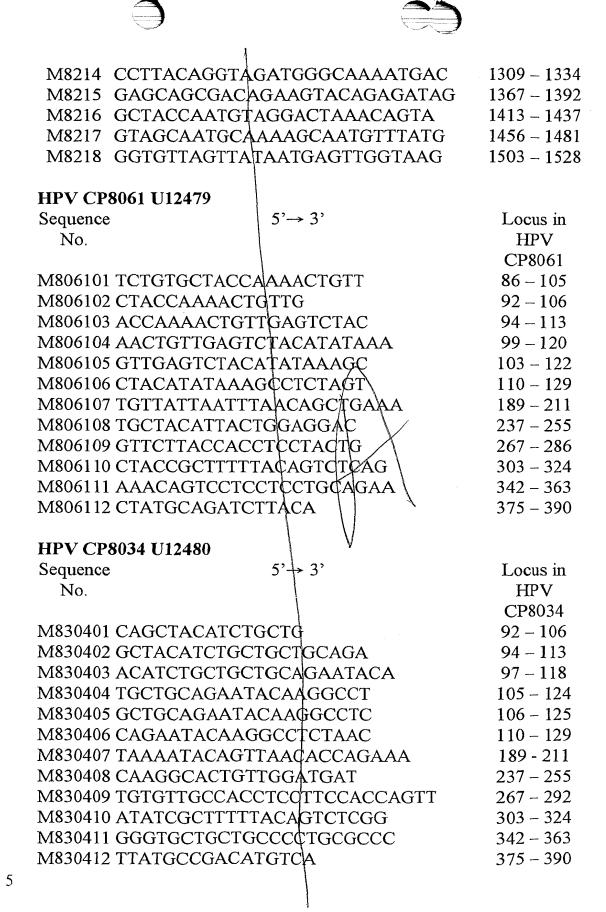
| | į. | | |
|----------|---|-------------------------------------|----------------------------|
| M6906 | CCACTTTTAAA | | 6604 – 6623 |
| M6907 | | TTACCACTGATG | 6683 – 6705 |
| M6908 | TTCTACTATTT | 1 | 6731 – 6749 |
| M6909 | CCTTACCTTGC | CTCCTACTGCTAGTT | 6761 – 6786 |
| M6910 | ATATAGGTTTA | TTAAAAATTCA | 6797 – 6818 |
| M6911 | CGATGCCCCTC | CACAGCCC | 6836 – 6854 |
| M6912 | AACACAAGCA | AATAAGAAGGCAG | 1101 – 1123 |
| M6913 | GAACAGCCCG' | TTGCAAGACATAACAA | 1158 - 1183 |
| M6914 | CAGACGAAGT | AAACAATTTACAGGC | 1208 - 1232 |
| M6915 | GGAGAGCAGT | GGACAGTGTTCCGGACAG | 1238 - 1267 |
| | CG | | |
| M6916 | GGTAGATAAA | CACAATGAACAAAATG | 1308 - 1333 |
| M6917 | TCAAGTGGAT | CTGTATCAGACA | 1360 - 1381 |
| M6918 | GCACAGGCAA | GTAGTGTAACCAAAA | 1399 – 1423 |
| M6919 | GTAATGTAAA | AGCAGÇ A TTATTAA | 1445 – 1468 |
| M6920 | CAGTATATGGT | rgtaadttata | 1481 - 1501 |
| | | | |
| HPV 6 N | IC 000904 | | |
| Sequence | } | 5'→ 3' | Locus in |
| No. | | | HPV 6 |
| M0601 | CATCCGTAACT | CACATCTTCC C | 6814 - 6833 |
| M0602 | ATCCGTAACTA | CATOTTCCA | 6815 - 6834 |
| M0603 | CTACATCTTCC | CACATACACCAA | 6823 - 6844 |
| M0604 | CATCTTCCACA | TACACCAAT | 6826 - 6845 |
| M0605 | ATCTTCCACAT | ACACCAATT | 6827 - 6846 |
| M0606 | CCACATACAC | CAATTCTGAT | 6832 - 6851 |
| M0607 | TAGCATTACAT | TGTCTGCTGAAG | 6911 – 6933 |
| M0608 | TCCCTCTGTTT | TGGAAGAC | 6959 – 6977 |
| M0609 | GTTATCGCCTC | CCCCAAATGGTACAT | 6989 - 7014 |
| M0610 | 1 | GTGCAGTCACAG | 7025 - 7046 |
| M0611 | GCCCACTCCT | GAAAAGGAA | 7064 - 7082 |
| M0612 | CTATAAGAAC | CTTAGT | 7094 - 7109 |
| M0613 | GGCGGACACC | CATTATGCGACTG | 1045 - 1067 |
| M0614 | GTTAGTCCTAT | AAACACTATAGCCGA | 1106 - 1131 |
| M0615 | CCACGATTGG | ACGCCATTAAACTTACAA | 1154 – 1183 |
| | | | |
| 1/0/1/ | GA | | |
| M0616 | | AACCAGGGAACTAACG | 1206 – 1231 |
| M0617 | GGCTGTTTCAA | ACCAGGGAACTAACG CATGGCGTACCGGAAA | 1206 – 1231 1279 – 1304 |
| | GGCTGTTTCAA GGTAGAGAAA | | |
| M0617 | GGCTGTTTCAA GGTAGAGAAA GGACACAGGA | CATGGCGTACCGGAAA | 1279 – 1304 |



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|---------------|-------------|----------------------------|-------------|
| M0620 | GCTAAAATGT. | AAAGATTTACGGGCAG | 1426 – 1451 |
| M0621 | GCTTTGGGCT | \$TCTTTTATAGATTTA | 1476 - 1501 |
| | | | |
| HPV 70 | NC 001711 | | |
| Sequence | ; | 5'→ 3' | Locus in |
| No. | | | HPV 70 |
| M7001 | TGTCTGCCTG | CACCGAAACG | 6614 - 6633 |
| M7002 | CTGCACCGAA | ACGGC | 6621 - 6635 |
| M7003 | GAAACGGCCA | TACCTGCTGT | 6628 - 6647 |
| M7004 | CGAAACGGC¢ | CATACCTGCTG | 6627 – 6646 |
| M7005 | CGGCCATACC | TGCTGTATATAG | 6632 - 6653 |
| M7006 | CTGTATATAG | CCCTACAAAG | 6644 - 6663 |
| M7007 | TACTATCACA | TTAACTGCTGACG | 6723 - 6745 |
| M7008 | TCCTGCAATT | TTGGACAAT | 6771 - 6789 |
| M7009 | AGTTACCCCT | CCACCATCTGCAAGCT | 6801 - 6826 |
| M7010 | GTATAGGTAT | TTACAATCAGCA | 6837 - 6858 |
| M7011 | GGATGCTCCT | ACACCTGAA | 6876 - 6894 |
| M7012 | CTATGACGAT | $\Gamma TAAAA / \setminus$ | 6906 - 6921 |
| M7013 | GGCCCAAAGG | GATGCACAATCAG | 1149 - 1171 |
| M7014 | GCAATCTAAA | TAAAAGTCCTTGT | 1202 - 1224 |
| M7015 | GTACATAGGG | AACAAAGØGTAACAC | 1240 - 1264 |
| M7016 | GGTAAACATA | TGCAATAAACAGG | 1278 - 1300 |
| M7017 | ACAAACGTGT | ATTCAGTACCAGACAGCG | 1306 - 1335 |
| | GC | | |
| M7018 | GTAGTAAATA | ATACAAATGGGGAAGA | 1378 - 1403 |
| M7019 | GGAGTGCAGT | AGTGTAGACAGTGCTA | 1446 - 1471 |
| M7020 | TCCACAGTCA | CCTACTGCACAGCTAA | 1491 – 1516 |
| M7021 | GCTAATAACC | AAAAAGCCATACTAC | 1531 - 1555 |
| M7022 | CACACATATG | GATTAGCATTTAACGA | 1570 - 1595 |
| | | | |
| HPV 72 | X94164 | | |
| Sequence | | 5'→ 3' | Locus in |
| No. | | | HPV 72 |
| M7201 | ATCTGTTGGT | TTAATGAGCT | 6759 - 6778 |
| M7202 | TTTGTGACAG | TTGTAGATAC | 6780 – 6799 |
| M7203 | CTGCCACAGC | GTCCT | 6829 - 6843 |
| M7204 | ACAGCGTCCT | CTGTATCAGA | 6834 - 6853 |
| M7205 | CCACAGCGTC | CTCTGTATCA | 6832 - 6851 |
| M7206 | AGCGTCCTCT | GTATCAGAATAT | 6836 - 6857 |
| M7207 | CAGAATATAC | AGCTTCTAAT | 6850 - 6869 |
| | 1 | | |



| M7208 | | TTAACTCCTGAAA | 6929 - 6951 |
|----------|------------|---------------------|--------------|
| M7209 | TAAGGCCTTA | ATTGGATGAC | 6977 – 6995 |
| M7210 | TGTGGTGCCT | TCTCCTTCTACCAGTT | 7007 - 7032 |
| M7211 | CTATAGGTTT | TTGCAGTCTCGT | 7043 - 7064 |
| M7212 | GGGGGCTGC | ¢ACCCCTCCTCCT | 7082 - 7103 |
| M7213 | ATATGCTAAC | TTATCC | 7115 – 7130 |
| HPV 74 | U40822 | | |
| Sequence | ; | 5'→ 3' | Locus in |
| No. | | | HPV 74 |
| M7401 | CCTACCTCA | CAATCG | 1686 - 1700 |
| M7402 | CTCACAATC | GCCTTCTGCTA | 1691 – 1710 |
| M7403 | ACCTCACAA | rcgccttctgc | 1689 – 1708 |
| M7404 | CAATCGCCT | TCTGCTACATATA | 1695 – 1716 |
| M7405 | ACAATCGCC | TTCTGCTACATAT | 1694 - 1715 |
| M7406 | CTACATATA | ATAGTTCAGAC | 1708 - 1727 |
| M7407 | TAGTATTAA | GTTAACTGCTGAGG | 1787 – 1809 |
| M7408 | TCCTACAGT | TTAGAAG⁄AG | 1835 –1853 |
| M7409 | GCTAACGCC | CCCCCAATGGTACTT | 1865 – 1890 |
| M7410 | CTACAGATA | rgtgcag rcc\2AG | 1901 – 1922 |
| M7411 | ACCTACGCC | rgataaagea\ | 1940 – 1958 |
| M7412 | CTATGCAAA | TTTAAGT \ | 1970 – 1985 |
| XXDX7.03 | A D025021 | | |
| | AB027021 | 5'→ 3' | T - ! |
| Sequence | | $3 \rightarrow 3$ | Locus in |
| No. | TOOTOTTAOT | SCOATO | HPV 82 |
| | TGCTGTTACT | | 6608 – 6622 |
| | TGCTGTTACT | _ | 6608 - 6627 |
| | | TTGCACAAAC | 6615 – 6634 |
| | | TCCAGCAAAC | 6631 – 6650 |
| | | TTACAACAC | 6710 – 6732 |
| | TTCTACAATT | | 6758 – 6776 |
| | | CCCCCTCCGCTAGTT | 6788 – 6813 |
| M8208 | | GTAAAAAATGCA | 6824 – 6845 |
| | GGACAGTCC | | 6863 – 6881 |
| | | ACACAAAAAA | 1094 – 1116 |
| M8211 | y | ΓΑΑΑAGACATTACAAA | 1156 - 1180 |
| IVI8212 | l l | AACCAAAACAGGCAAACCT | 1201 – 1230 |
| N/0212 | TC | | 1242 1260 |
| 11/18/13 | GUAUATTAC! | TGGACAGTTATCCGGACA | 1243 – 1269 |





HPV L1AE5 AF039910

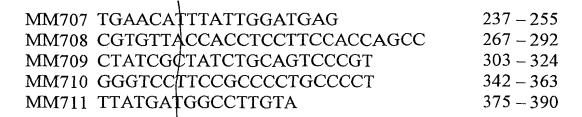
| Sequence | 5'→ 3' | Locus in |
|-------------|------------------------|-----------|
| No. | | HPV L1AE5 |
| MAE501 ATCT | ACTGCAACTACTAATC | 69 - 88 |
| MAE502 CTGC | AACTACTAATC | 74 - 88 |
| MAE503 CTGC | AACTACTAATCCAGTT | 74 - 93 |
| MAE504 ACTA | CTAATCCAGTTCCATCTA | 79 - 100 |
| MAE505 CTAA | TCCAGTTCCATCTATA | 83 - 102 |
| MAE506 CTAT | ATATGAACCTTCTAAA | 98 - 117 |
| MAE507 TAAA | ATTACACTTACTACTGATG | 177 - 199 |
| MAE508 TCCT | ACTATTTAGATAGT | 225 - 243 |
| MAE509 TGTT | AGTCCTCCCCCATCTGCTAGCT | 255 - 280 |
| MAE510 ATAT | AGGTTTTTACAGTCATCT | 291 - 312 |
| MAE511 GGAT | GTGGTTGTTCCACAA | 330 - 348 |

HPV MM4 U12488

| Sequence | 5'→ 3' | Locus in |
|-------------|------------------------|-----------|
| No. | | HPV MM4 |
| MM401 CTGC | TGTTACTCAATCTGTT | 92 - 111 |
| MM402 TGCT | TTACTCAA/IC\ | 93 - 107 |
| MM403 GTTA | TCAATCTGTTGCACA | 97 - 116 |
| MM404 TGCA | CAAACATTTACTCCAG | 111 - 130 |
| MM405 TTAC | rcaatctg#tgcacaac | 98 – 119 |
| MM406 AAAC | ATTTACTCCAGCAAAC | 116 - 135 |
| MM407 TAAA | ATCACTTTAACTACTGAAA | 195 - 217 |
| MM408 TTCTA | A¢AATTTAďAACAG | 243 - 261 |
| MM409 ATTA | ACCTTGCCCCCCTCAGCTAGTT | 273 - 298 |
| MM410 CTAT | CGATTTGTAAAAAATGCA | 309 - 330 |
| MM411 GGAC | AGTCCTCCACAGGCT | 348 - 366 |

5 **HPV MM7 U12489**

| Sequence | 5'→ 3' | Locus in |
|----------|-------------------------|-----------|
| No. | | HPV MM7 |
| MM701 | TGCTGCTACACAGGC | 93 - 107 |
| MM702 | GCTGCTACACAGGCTAATGA | 94 - 113 |
| MM703 | TGCTACACAGGCTAATGAAT | 96 - 115 |
| MM704 | CTACACAGGCTAATGAATACAC | 98 - 119 |
| MM705 | ATGAATACACAGCCTCTAAC | 110 - 129 |
| MM706 | CAAAATACATCTTACCCCTGAAA | 189 - 211 |
| | | |



HPV MM8 U12490\

| Sequence | 5'→ 3' | Locus in |
|-------------|------------------------|-----------|
| No. | | HPV MM8 |
| MM801 TGCTA | .C¢AACACCGA | 93 –107 |
| MM802 CTACC | CAACACCGAATCAGAA | 95 –114 |
| MM803 CCAAC | CA¢CGAATCAGAATATAA | 98 –119 |
| MM804 CAGAA | ATATAAACCTACCAAT | 110 - 129 |
| MM805 TAAGO | GTCCGTCTGACTCCAGAGG | 189 - 211 |
| MM806 TGACT | CCTTATTAGATGAG / | 237 - 255 |
| MM807 TGTTG | TG¢CCCCTCCCT ¢C&CAAGTT | 267 - 292 |
| MM808 CTATA | .GG†ACTTGCAG†¢T¢GC | 303 - 324 |
| MM809 GGGGC | GCCGCCGCCAAG&CT | 342 - 363 |
| MM810 TTATG | CTGGCATGTCC \ | 375 - 390 |

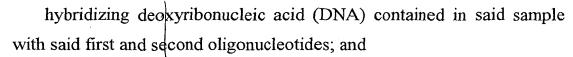
wherein the sequence of said first oligonucleotide is selected from one of the sequence group corresponding to said first subtype of human papilloma virus and complementary sequences thereof, and the sequence of said second oligonucleotide is selected from one of the sequence group corresponding to said second subtype of human papilloma virus and complementary sequences thereof.

Some 3. The detector according to claim 4, wherein said detector is an oligonucleotide chip.

6. A method for simultaneously detecting and identifying subtypes of human papilloma viruses contained in a sample, comprising steps of:

providing a first oligonucleotide and a second oligonucleotide for respectively hybridizing with a first and a second subtypes of human papilloma viruses;

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removing nonhybridized DNA,

thereby said subtypes of human papilloma viruses contained in said sample are detected and identified.

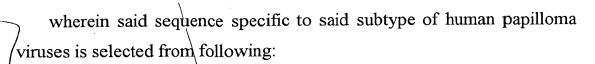
- 7. The method according to claim 6, wherein said DNA contained in said sample is the product of polymerase chain reaction (PCR).
- 8. The method according to claim 6, wherein said DNA contained in said sample has signaling substances labeled thereon.
- 9. The method according to claim 8 wherein said signaling substance is biotin.
 - 10. The method according to claim 9 further comprising a step of performing a reaction of biotin and avidin-alkalinephosphatase.
 - 11. The method according to claim 8, wherein said signaling substances are fluorescent substances.
 - 12. The method according to claim 11, wherein said fluorescent substance is Cyanine 5.

13. A method for detecting a subtype of human papilloma viruses contained in a sample, comprising steps of:

providing an oligonucleotide complementary to a sequence specific to said subtype of human papilloma viruses;

hybridizing said oligonucleotide with deoxyribonucleic acid (DNA) contained in said sample;

removing non-hybridized DNA contained in said sample; and
detecting hybridized DNA to show whether said subtype of human papilloma viruses contained in said sample,



| HPV subtype | Accession | loci /bp |
|-------------|------------------|-----------------|
| | number/bp | |
| HPV 11 | NC 001525/7931 | 6727 – 7135/409 |
| | | 1044 – 1509/466 |
| HPV 16 | NC 001526/7904 | 6602 - 7013/412 |
| | | 1089 - 1538/450 |
| HPV 18 | NC 001357/7857 | 6578 - 6992/415 |
| | | 1135 – 1609/475 |
| HPV 26 | NC 001583/7855 | 6553 - 6967/415 |
| | | 1093 - 1522/430 |
| HPV 31 | NC 001527/7912 | 6520 - 6931/412 |
| | | 1083 - 1476/394 |
| HPV 32 | NC 001586/7961 | 6837 - 7245/409 |
| | | 1032 - 1536/505 |
| HPV 33 | NC 001528/7909 | 6559 - 6967/409 |
| | | 1100 - 1532/433 |
| HPV 35 | NC 001529/7851 | 6542 - 6953/412 |
| | | 1089 - 1497/409 |
| HPV 37 | NC 00\1687/7421 | 6711 - 7125/415 |
| HPV 39 | NC 00 535/7833 | 6605 - 7019/415 |
| | | 1149 - 1593/445 |
| HPV 42 | NC 001\534/7917 | 6802-7210/409 |
| | | 1085-1485/401 |
| HPV 43 | U12504/455 | 21-435/415 |
| HPV 44 | NC 001 89/7833 | 6647 - 7061/415 |
| | | 1038 - 1491/454 |
| HPV 45 | NC 001590/7858 | 6582 - 6996/415 |
| | | 1136 - 1567/432 |
| HPV 51 | NC 001533/7808 | 6486 - 6897/412 |
| | | 1092 - 1506/415 |
| HPV 52 | NC 001592/7942 | 6623 - 7031/409 |
| | | 1085 - 1526/442 |
| HPV 53 | NC 00159\\\37856 | 6614 - 7022/409 |
| HPV 54 | NC 001676/7759 | 6561 - 6972/412 |
| | | 1013 - 1484/472 |
| HPV 56 | NC 001594\7844 | 6559 - 6967/409 |
| | 1 | |

